# 4 Upper Mississippi River System Applications

The objective of this investigation was to present the best model for vessel wave prediction with an emphasis on the common types of recreational vessels that operate on the Upper Mississippi River System (UMRS).  From the limited evaluation presented in the previous section, it appears that the Weggel and Sorensen (1986) model gave the best available predictions for $H_m$ (wave direction and period can be predicted by Equations 4 through 6).  The Weggel and Sorensen (1986) model involves cumbersome calculations to determine $H_m$ given the vessel type ($A'$ and $B'$), displacement, and speed as well as the water depth and the distance from the sailing line.  But, Weggel and Sorensen have used this model (with $A' = 1.0$ and $B' = 0$) on a few occasions for vessel wave height predictions for coastal design.